

WHAT IS CLAIMED IS;

1. A method for joining a rod and a collar together, comprising:

a first step of fitting a collar blank onto a rod in which an annular groove has been formed;

a second step of squeezing said collar blank by a swaging process to cause a plastic flow of the material of the blank into said groove; and

a third step of upsetting said blank while restraining the outer periphery of the blank so as to cause a further plastic flow into said annular groove.

2. A method for joining a rod and a collar together in accordance with Claim 1, wherein the third step includes a process of locally upsetting the blank.

3. A method for joining a rod and a collar together in accordance with Claim 1, wherein the second and third steps are achieved continuously using the same die set.

4. A method for joining a rod and a collar together in accordance with Claim 2, wherein the second and third steps are achieved continuously using the same die set.

5. A method for joining a rod and a collar together in accordance with Claim 1, wherein a plurality of rings which have been blanked out of a sheet material are used as the blank.

6. A method for joining a rod and a collar together in accordance with Claim 2, wherein a plurality of rings which have been blanked out of a sheet material are used as the blank.

7. A method for joining a rod and a collar together in accordance with Claim 3, wherein a plurality of rings which have been blanked out of a sheet material are used as the blank.

8. A method for joining a rod and a collar together in accordance with Claim 4, wherein a plurality of rings which have been blanked out of a sheet material is used as the blank.

9. A method for joining a rod and a collar together in accordance with Claim 1, wherein said annular groove in said rod is provided with a protrusion extending along the circumferential direction.

10. A method for joining a rod and a collar together in accordance with Claim 2, wherein said annular groove in said rod is provided with a protrusion extending along the circumferential direction.

11. A method for joining a rod and a collar together in accordance with Claim 3, wherein said annular groove in said rod is provided with a protrusion extending along the circumferential direction.

12. A method for joining a rod and a collar together in accordance with Claim 4, wherein said annular groove in said rod is provided with a protrusion extending along the circumferential direction

13. A method for joining a rod and a collar together in accordance with Claim 1, wherein said blank is made in such a shape that its cross-section decreases progressively toward the rear side of the swaging direction.

14. A method for joining a rod and a collar together in accordance with Claim 2, wherein said blank is made in such a shape that its cross-section decreases progressively toward the rear side of the swaging direction.

15. A method for joining a rod and a collar together in accordance with Claim 3, wherein said blank is made in such a shape that its cross-section decreases progressively toward the rear side of the swaging direction.

16. A method for joining a rod and a collar together in accordance with Claim 4, wherein said blank is made in such a shape that its cross-section decreases progressively toward the rear side of the swaging direction.

17. A die set for joining a rod and a collar together, wherein said die set comprises a die and a reception die each having a bore through which the rod can be inserted, said die having a forming bore which restrains the outer circumference of a collar blank fitted on said rod, said reception die having a punch portion which can be inserted into said forming bore of said die set, said forming bore and said punch being formed around the insertion bores for the rod respectively, and wherein said die has an annular projection formed on the bottom surface of the forming bore so that it can be driven into the facing end surface of said blank.

18. A die set for joining a rod and a collar together in accordance with Claim 17, wherein said reception die is formed in a split construction which is separable along the axial direction of said rod.